

**ARCHITECTURAL AND ENGINEERING INSTRUCTIONS
FOR
INSTALLATION SUPPORT
“GOOD NEWS STORIES”**

1. GENERAL. The following are some of the “Good News Stories” from a Major Subordinate Command (MSC) and two District Commands. Many thanks to the Pacific Ocean Division (POD) and the Honolulu (POH) and the Japan (POJ) District Engineer Offices!! Other design agencies are encouraged to submit their “Good News Stories” for updating this AEI directly to HQUSACE, ATTN: CEMP-EA, by FAX: 202-761-8815 or E-Mail: stanley.swofford@inet.hq.usace.army.mil.

2. MSC INSTALLATION SUPPORT ACTIVITIES.

a. In FY95, the MSC assisted a Directorate of Public Works (DPW) in identifying \$80M of new infrastructure, energy, and barracks repair projects. Project scopes with order of magnitude estimates were provided to the DPW for its input into the DPW work management data base. The DPW, in turn, committed to having the MSC design and construct a significant percentage of the projects in the next few fiscal years.

b. In FY94 and FY95, the MSC assisted Army Medical Center (AMC) facility management personnel in scoping out \$20M worth of construction projects. Project scopes, order of magnitude estimates, and DA 4283s were done for the customer so they could get their projects into the DPW work management system. This effort directly resulted in the MSC receiving \$3M plus in project order funds in the last two fiscal years. The MSC anticipates continuing this effort for the foreseeable future. This process is a “win-win-win” situation for the AMC, DPW, and the MSC.

c. In FY 95, the MSC approached the DPW to assist in the execution of its Job Order Contracts (JOC) program. The DPW has agreed in principle to this and the MSC is working out potential fee schedules with the DPW. There exists the possibility that the MSC could start supporting the DPW in this initiative in FY96.

d. The MSC is currently offering services to the DPW to assist in the formulation, soliciting, awarding, and surveillance of facility maintenance contracts. The DPW has been unable to keep up with the increasing requirements. In FY95, the MSC started to do some of these contracts for the DPW. Problems exist with the installation contracting organization resisting the “off loading”

of this work to the MSC.

e. Real Estate Support.

(1) In 1994, the MSC's Real Estate Division prepared documentation which led to a successful claim against the local city and county for the refund of taxes paid by the Army for leasing privately-owned land for training. The amount of taxes, including interest, totaled \$1,272,603 that will be refunded by the city to the Army in seven annual payments starting in August 1994.

(2) The MSC's Real Estate Division received an urgent request from the Marine Corps after business hours on 31 October 1995 for use of pyrotechnic devices at a training area leased from a private land owner for a 6-8 November 1995 training period. Normally, the land owner required at least two weeks for approval. Personnel from the Real Estate Division expeditiously processed the approval, which was received from the land owner on 1 November 1995.

(3) In FY94, the design agency real estate office was instrumental in negotiating a seven-year lease with a private land owner for the continued discharge of effluent from an Army installation. Without the lease, the installation's only alternative would have been to discharge the effluent into an existing stream which would have potentially caused a Notice of Violations.

f. Master Planning. In FY93 through FY 95, the MSC assisted in developing or updating real property master plans for all major installations it supports. In FY95, the MSC assisted a Tiger Team in updating the master plan for a major Army installation. Through this team's efforts, the military organization was able to provide an updated master plan at a savings of over \$200K. In FY95, the MSC also assisted a MACOM in completing a master plan for another major Army installation.

g. Prepare DD Form 1391. Beginning in FY94 and continuing through the present, the MSC assisted a DPW in developing its \$700M plus Whole Barracks Renewal (WBR) Program. Based on a dynamic budgetary program, the MSC developed over 20 DD Form 1391s totaling upward of \$400M in project scopes. Due to the MSC involvement in the master planning stages of the WPR Program, the MSC was able to provide 48-hour response to requests for scope changes.

3. EXPANDING DESIGN AGENCY WORKLOAD. Through the joint endeavors of the Project Management and Technical Divisions, the design agency has proficiently executed US funded design and construction work to support all military installations located in a Host Nation. The design placement for US funded work grew from an initial \$22M in FY95 to \$29M by the end of the fiscal year, and will further increase to over \$40M in FY96. This increase reflects the customers' satisfaction and the design agency's commitment to delivering quality services on

schedule. Examples of new work include:

a. Hotel Renovation. The design agency is providing innovative master planning, and quality and timely design documents for this whole hotel renovation program. The hotel manager envisions the hotel becoming a top-notch morale and recreation facility for all US Forces personnel and their families, at affordable prices in one of the world's highest cost of living areas. The scope includes general renovation work, increase in inventory storage, improvement to floor plan layouts, and more entertainment areas for all age groups. Construction will be phased over several years at a total cost of \$20M plus.

b. Naval Base. The design agency is gaining more design and construction projects in support of increasing customer demands. The design agency's willingness to take any and all types of engineering and construction work is leading to additional work. Examples include:

(1) Design of six maintenance and repair projects with a total CWE of \$2.2M. Construction for two of the six projects will be by Navy Seabees, the other four projects by the design agency.

(2) Preparation of two collateral equipment buy packages. The collateral equipment list is used for budgeting and purchasing equipment for planned construction of new facilities.

(3) Removal and disposal of ceiling tiles in three existing storage caves. In-house designers completed the design within two weeks after receipt of the design directive in early June, allowing sufficient time for award of a construction contract in FY95.

c. Defense Commissary Agency (DeCA). Because of the design agency's responsiveness and ability to provide one-stop services, DeCA decided to use the design agency as its single design and construction agent in the Host Nation. The design agency prepared designs for maintenance and repair projects of commissaries and warehouses at three installations. The present DeCA program for design agency execution represents over \$20M in construction costs.

d. Air Force Installations. The design agency received design directives for 27 O&M type projects for one Air Base and three for another Air Base late in FY95. Although these were late starts, the design agency awarded A-E contracts for the design of all projects in FY95 totaling \$1,391K and \$270K respectively. These late contracts were for the design of O&M projects, real property master planning, digitizing of base maps, and the preparation of Form 22s (equivalent of DD Form 1391s) for planned Host Nation projects.

e. Naval Base. A naval base requested award of design contracts for various projects in

order to supplement its design requirements. Although the construction contracts will be awarded and managed by the Navy resident office, the design agency agreed to do the design in support of the base facility engineers and quickly award these late projects before the end of the FY. All of the specifications for the projects will be in NAVFAC format. The projects included:

(1) Repair of hangar doors for two buildings.

(2) Repair of two BEQs.

f. Environmental Programs. The design agency's environmental program has increased every year since the creation of a dedicated environmental group in 1992. Examples of environmental support to installations include:

(1) Two Indefinite Delivery (ID) general environmental services contracts have been utilized extensively during FY94 and FY95 to provide responsive and quality environmental services to all installations throughout the Host Nation. Based on the installations' requirements, new ID contracts are being solicited.

(2) The design agency accomplished a review of current Host Nation environmental criteria to support the military services in developing the environmental Final Governing Standards in the Host Nation. This significant document sets forth environmental standards required for installations to comply with the DoD Overseas Environmental Policy.

(3) The MSC and design agency teamed up to rapidly execute a contract to remediate fuel contaminated soils and groundwater at an Air Base. The remediation is being accomplished using a combination of soil vapor extraction and bioslurping technologies. The project began in August 1995 with an anticipated completion of October 1999.

(4) The MSC assisted the design agency by awarding three radon testing contracts for the Army, Air Force, and Marine Corps utilizing existing MSC ID type contracts. This is another example of efficient partnering between an MSC and its design agency, and demonstrates the depth of expertise and execution capability.

(5) The design agency is currently developing a removal and soil remediation ID type contract for use by all military services within the Host Nation.

4. REQUIREMENTS CONTRACTS.

a. Requirements Contracts provided by design agencies continue to be a practical, flexible, and vital tool for installation engineers to quickly accomplish work on their installations and bases

at economical prices. The design agency has current contracts for exterior painting, interior painting, carpeting, pavements (both roads and airfields), playground equipment, fencing, turf, and repairs to antennas.

b. Requirements Contracts provided by design agencies include performance type bid items with narrative descriptions and requirements, standard details, and drawings. Specific project requirements are established and defined with each individual delivery order, matching the needs with the appropriate bid items and project funding. The design agency has also developed Engineered Requirements Contracts (ERC) which combine the definitization of Simplified Design Methods (SDM) with the flexibility and speed of Requirements Contracts.

c. This past year, the design agency further refined and streamlined the delivery order award process through close coordination with its customers. This resulted in clearly defined requirements from the customers in consonance with contractual and financial procedures and enabled the design agency to award delivery orders for bonafide requirements within a few hours of notification by the installations.

d. In FY95 the design agency awarded 39 delivery orders against Requirements Contracts, with a total value of \$7.2M. This is fairly consistent with its FY94 actions of 107 delivery orders totaling \$7.3M. The reduction in the number of delivery orders is partly due to the design agency streamlining its procedures. One Air Base in particular has embraced and made maximum utilization of these economical contracts. In FY95, the design agency awarded \$6.2M for the Air Base alone.

e. Other installations have recently shown renewed interest for these contracts. The design agency is currently in various stages of developing contracts for new painting and paving Requirements Contracts for installation engineers in the Host Nation, and creating new ERC contracts to construct storage sheds, retrofit existing family housing patios and sheds, install lighting, and other recurring requirements on an Air Base.

5. SERVICES CONTRACTS FOR NON-CONSTRUCTION SCOPE OF WORK.

a. As a follow-on to the facility maintenance requirements, the design agency has instituted a policy of providing options for facility maintenance services within all major construction projects awarded in FY95 and beyond. With the incorporation of OMA funded facility maintenance contracts as options within a major construction contract, the design agency saves the customer approximately \$30K per contract per year.

b. The design agency awarded the following contracts for facility maintenance requirements:

(1) A contract was awarded in the amount of \$943,319 for the maintenance of the Worldwide Management Command and Control System at an Army installation.

(2) A contract was awarded in the amount of \$127,057 for the maintenance of a Child Development Center and Criminal Investigation Division Command.

c. During the last two years, the design agency has pursued installation service requirements. The design agency awarded the following contracts for TV inspection and cleaning of sewer lines:

(1) A contract was awarded in the amount of \$1.5M for requirements at three Army installations.

(2) A contract was awarded in the amount of \$495,413 for janitorial services at an Army installation.

6. JOB ORDER CONTRACTS (JOC). The MSC has a JOC contract set up for DPWs, which has also been used to award some projects for the MSC headquarters building. For FY95, there were 193 delivery orders awarded totaling approximately \$4.5M. The JOC contractor has a limit of \$300K per delivery order with an annual limit of \$6M.

7. DESIGN-BUILD CONTRACTS. There are certain situations where design-build does work for small contracts. In FY95, the design agency was contracted by CERL to develop, solicit, and execute a \$1.4M R&D energy project. With a short suspense, and state of the art technology requirements for the project, the design agency developed a four-month fast track schedule for the development, solicitation, evaluation and execution of a design-build contract.

8. COST-PLUS FEE CONTRACTS. Under certain situations, this type of contract can be immensely helpful. In one case, the design agency used a cost-plus fee contract awarded by another design agency to remove underground storage tanks.

9. PURCHASE ORDER CONTRACTS (a.k.a. SIMPLIFIED ACQUISITION PROCEDURES (SAP)). This type of contract can be used for small work or the purchase of equipment and materials.

a. The design agency's capabilities to execute purchase orders less than \$25K has been outstanding. The design agency provided rapid response and quick awards for all customers far into the end of the fiscal year. The small purchase order contracts have enabled the design agency to help its customers for even the smallest of jobs, and often made a big difference in enhancing grass-roots quality of life for the installations. Examples include the following:

(1) Mini-blinds. In FY94, after identifying an urgent need for mini-blinds caused by a base supply mix-up that neglected to order mini-blinds for a new 68-unit high-rise family housing building due to be completed, the Base Civil Engineer at the Air Base requested that the design agency investigate the possible procurement of mini-blinds. The design agency not only was able to secure a supplier with blinds in the exact sizes required and award the contract within four days, but the unit prices for the same model and manufacturer were considerably cheaper than the Air Base supply contract. The mini-blinds arrived in time to be installed with the new tenant occupancy.

(2) Nameplates. In both FY94 and FY95, the design agency assisted an Air Base housing office in maintaining its supply of nameplates to be used for newly arriving personnel. The housing office had an aging occupant identification system consisting of aluminum lettering individually placed in tracks secured to the front of all family housing units. Normal wear and the lose of letters hampered the housing office's capabilities to properly post the names. The design agency procurement of new tracks and a supply of letters helped to increase the quality of life and morale at this remote installation.

(3) Carpet Crest. In FY95, the headquarters of a MACOM of a military unit requested assistance from the design agency to expeditiously procure a carpet crest for a September 1995 deactivation ceremony. The design agency was able to plan, award the procurement, and deliver the carpet crest within four weeks.

(4) Temperature Reading. In FY95, the DEH at an Army installation required an interior temperature survey before initiating a year-end design contract to upgrade an existing sprinkler system. The design agency was able to execute a services contract within four weeks; have a contractor available for monitoring the interior temperatures; and have the data available for the DEH.

(5) Communications Conduit Installation. In FY95, communications requirements for a MACOM headquarters were not submitted in time to be included in Host Nation and US funded projects. The design agency was able to execute a contract for the conduit installation. The construction work required intensive coordination with the MACOM, Signal Battalion, DEH, Host Nation field office, and the contractor's representatives. The contractor successfully installed the conduit in conjunction with the Host Nation construction.

(6) DeCA Office Renovation. In FY96, an urgent office renovation project required design and contracting by the design agency to meet the short suspense created by DeCA who was increasing its staff and office space. The design agency initiated actions to meet the renovation requirements and to provide a product expeditiously at a fair and reasonable cost. Instead of several months, the project was completed within weeks.

(7) Foreign Language Interpretation for HAZWOPER Training. In FY95, a customer needed a foreign language interpreter for a pending training course. The design agency quickly responded by issuing a contract for an interpreter who not only translated the oral presentation, but also translated the course materials. The rapid action by the design agency provided the required assistance in less than two weeks.

(8) Asbestos Training. In late FY95, the Marine Corps requested the assistance of the design agency to provide asbestos training. The design agency was able to plan and coordinate the specific training before the end of the year. Expeditious actions by the design agency provided the appropriate instructors for the classes and completely fulfilled the installation's training requirements.

b. The design agency has awarded purchase order contracts; the limit was \$50K but recently was raised to \$100K when using FACNET (electronically advertizing).

10. REQUEST FOR PROPOSALS (RFP). USACE is best suited to negotiate with contractors because of its proven in-house expertise in cost engineering and contract legal expertise, as well as special expertise in negotiation and contract formulation and administration.

a. The MSC has utilized RFP for both Non-Appropriated Funded (NAF) contracts and MILCON projects in locations where there is limited competition. The local NAF organization prefers the use of RFP type contracts which the MSC used for its major NAF projects and for a major NAF funded hotel.

b. The design agency normally used sealed bidding, rather than negotiated procedures, as the primary method for the procurement of construction contracts. Competitive negotiated procedures are available for use on a case-by-case basis when special requirements may dictate. The design agency successfully used negotiated procedures on large, complex facilities and projects with special limitations, or when detailed discussions are otherwise necessary.

(1) In such cases where it received unreasonable bids from an Invitation For Bid (IFB) due to misinterpretation or misunderstanding of the bidding documents by the bidders, the design agency was extremely successful in converting the IFB to an RFP with accompanying clarifications, and then conducting competitive negotiations.

(2) For example, the design agency recently had a situation where the low bid was nonresponsive, and the next lowest responsive bid was 155 percent higher. By converting to negotiated procedures and clarifying certain critical items, the design agency quickly awarded the construction contract at a lower price than the original first low bidder. Thus, the customer and the Government saved not only money but also time, because it was not necessary to reissue the

solicitation.

11. LETTER CONTRACTS. This is a valuable tool to handle emergencies, such as hurricane, earthquake, and other recovery efforts.

12. TOOL-BOX ENGINEERING. USACE has provided countless examples of tool-box engineering support to its customers, such as preparing real property master planning data, preparing DD Form 1391s, solving all kinds of environmental issues, and a whole gamut of design and construction, real estate, information management, and public relations problems.

a. Examples of tool-box engineering support provided to customers are as follows:

(1) Upon completion of a construction contract, ADAL Hydrant Fueling System, Phase 1, excessive vibration of the pumps and leaking mechanical seals were experienced. The contractor refused to correct the problem under the latent defect clause claiming that he had corrected all warranty items. The design agency performed a field inspection of the system which found no design deficiencies and pointed out errors in the report of the contractor. The contractor subsequently agreed to participate in a joint detailed inspection of the system with the design agency when he realized that there were no design deficiencies and possible construction latent defects. The pump failures were determined to be caused by a combination of multiple items, such as the improper installation of pump mounting flanges by the contractor, modification of the pipe system by the Base Civil Engineer, frequent improper operation of the pumps, and inadequate and improper maintenance. The Government estimate for this work was estimated to be \$218,000; however, the contractor agreed to perform the work for \$6,800, since he was anxious to do the work himself as there was a strong indication of construction latent defects and to demonstrate a cooperative partnering spirit.

(2) Numerous tool-box engineering support were accomplished after a hurricane devastated an island in the Pacific Ocean in September 1992. Some of the services provided by the design agency included:

(a) Developed a generic scope of work for the repair of 13 schools (administrative buildings, classroom buildings, gymnasium, library, etc.), a community college, and hospital facilities.

(b) Worked with a contractor to identify the extent of damage; provided expertise on the methods for “transient” repair and replacement for preconstruction estimates; defined the scope of work with the contractor; provided a Government estimate for the Contracting Officer for letter contract award; checked the contractor’s proposals; checked the contractor’s submittals; and performed on-site surveillance of the contractor’s work.

(c) Assessed the structural integrity of two National Guard Armories and recommended immediate on-site “stop gap” measures for leakage and hazard mitigation.

(d) Provided technical support for damage assessment and acquisition for emergency generators, power poles, wastewater treatment plants, and other public works facilities and services.

(3) Solved a myriad of various problems at an Army Medical Center, such as:

(a) Roof drainage.

(b) Central plant electrical and mechanical systems.

(c) Water pressure in the renovation project.

(d) Electrical substation issues.

(4) In August 1994, the design agency conducted three classes on HVAC system operation for the Marine Corps. Training was funded by the Marine Corps and necessitated by difficulties the installation maintenance personnel were having in properly operating the HVAC system in Host Nation funded facilities. Each class consisted of 1 1/2 days of instructions, 1/2 day of field work, and a 2-3 hour session of questions and answers. Materials covered were air conditioning loads and basic air conditioning cycles, air and water system balancing, psychometrics, insulation and water vapor transmission, HVAC system controls, and descriptions and discussions of actual air conditioning systems. This training led to a better understanding by the installation maintenance personnel on why they were doing certain functions.

b. Tool-box engineering support has included the following:

(1) Improvements in Concrete Quality. Since the inception of Host Nation projects in the 1980s, numerous facilities built by the Host Nation have had cold joints and widespread cracking in concrete work due to non-adherence to standard concrete practices by Host Nation contractors. Although the Host Nation had been informed about this recurring problem on many occasions, very little action was initiated by them toward correcting this situation. A study was funded by WES in 1994. The recommendations of this study provided a sound technical basis for discussions with the Host Nation. The design agency held several meetings with Host Nation personnel in the past three years and recently succeeded in persuading them to enforce measures for improvement in concrete work. In May 1995, the Host Nation said they would consider showing control joints and construction joints in all concrete work at the design stage. Standard details for the concrete joints will be provided by the design agency. Recent projects are already showing results. Design agency

and Host Nation personnel conducted a joint site visit in August 1995 to witness a major concrete placement. The Host Nation accepted a proposal from the design agency to hold partnership seminars with Host Nation contractors,

A-Es for construction phase services, and Host Nation field office personnel on good concrete practices. Design agency personnel, along with Resident Office personnel, conducted the first Concrete Partnering Seminar on 30 August and the second on 22 September.

(2) Concrete Curling in Warehouses. In one location, it was the practice on Host Nation construction for the civil contractor to place the interior slabs-on-grade after the architectural contractor completed the foundation, interior and exterior bearing walls, and roof (this was an example of the fragmented contracting practice by the Host Nation). This procedure created a temperature gradient as the floor surface temperature was lower than under the slab due to the cooling effect of the roof shade and evaporation from wetted mats. The top surface then shrank and curled up at the edges and corners of unrestrained portions of the slab. With the traveling of loaded high lift vehicles across these raised edges, it wasn't long before joints were damaged and cracks occurred in the interior area of the slabs. Through successful partnering sessions between Host Nation engineers, contractors and the design agency construction staff, some corrective measures have been identified, tested, and found to help reduce the amount of curling in the slabs. Based on these results, further partnering sessions with the Host Nation will be held to modify design and construction methods for future warehouses.

(3) Testing, Adjusting, and Balancing (TAB) Verification Program.

(a) Proper TAB of HVAC systems is an important step in preparing a HVAC system for facility turnover. Unfortunately, TAB has not received adequate attention from contractors on Host Nation construction. As a result, there have been numerous customer complaints of uncomfortable temperature conditions, excessive HVAC system noise, and relative humidity problems. In FY94, the design agency initiated a TAB Verification Program to field verify the data recorded in TAB reports furnished by the contractor. Using an accurate airflow measurement instrument at a number of sites, the design agency found several problems, including:

- Poor contractor airflow measurement procedures.
- Questionable reporting and recording of TAB data.
- Numerous discrepancies between design and actual airflow rates.

(b) In all cases where serious problems were noted, contractors have agreed to correct the problems. The design agency has also found that contractors are beginning to pay closer attention to their TAB work since they know that the design agency will be verifying their work.

At a recent site visit, the design agency learned that the contractor had purchased an airflow measurement instrument similar to the design agency's just for that particular project. The design agency feels that this program has already resulted in improved contractor TAB performance, higher quality facilities for its customers, and an increased understanding and awareness among field office personnel of proper TAB techniques.

(4) Construction Management Assistance (CMA) and Quality Assurance (QA) Visits. The design agency's QA Section makes periodic visits to field offices, visiting project sites, reviewing office procedures, and visiting customers and Host Nation field office staffs. These are called CMA and QA Visits.

(a) CMA is conducted once each year. The three main purposes of the CMA visits are:

- Review the field office procedures and files and project documentation for compliance with field office policies.
- Meet with the main customers and the Host Nation field office personnel at that installation.
- Visit several project sites to observe safety measures and procedures and quality of construction.

(b) Meetings with the customers and local Host Nation field office chiefs are especially useful and provide a face-to-face interchange of opinions, ideas and recommendations. Customer meetings also help to emphasize the design agency's concern for its customer and lets them know that the design agency is willing to listen. Meetings with Host Nation field office chiefs provides an opportunity to talk directly about construction problems and their possible solutions, as well as giving each side some personal insight into the other. Project site visits are a secondary, but important, concern during CMA visits. Usually about four sites are visited. During the site visits the team looks at and emphasizes construction quality and safety.

(c) QA visits are conducted once each year. Emphasis is placed on project site visits and training. The QA team visits the majority of project sites and spends more time at each site. Construction quality and safety are given a hard look. During these visits the QA team also provides some classroom training, usually about 3-4 hours per visit. Training emphasizes ways to eliminate recurring deficiencies or how to apply code and regulatory requirements to the actual construction process.

(d) During the CMA and QA visits several recurring problems or concerns were noted that are common to most areas within the geographic area of the design agency and initiatives are

underway to address these deficiencies.

(5) Safety.

(a) All contractors at an installation or base are required by Host Nation law to form a Contractor Safety Committee. This group administers the safety program for Host Nation construction at that installation or base; organizes safety activities, such as monthly Safety Patrols, which are group visits to each construction site at the installation or base; and administers the Project Safety Evaluation Program. The Safety Patrol sometimes includes a representative from the Host Nation office. After each month's Safety Patrol, the group evaluates each contractor's site for safety awareness (Project Safety Evaluation). At some installations or bases, awards are given to the best site for the month. The friendly competition helps make the program more interesting as well as making the work sites safer.

(b) Job site accidents earlier this year have made the Host Nation acutely aware of some safety shortcomings. For instance, after a confined space accident which resulted in two deaths, the District Engineer wrote a letter to the Host Nation expressing his concern about safety shortcomings. The Host Nation recently sent a directive to its field offices regarding safety when working in confined spaces.

(c) The design agency's safety personnel worked very closely with the Host Nation and in partnership with its field offices to strengthen and improve project safety, suggesting ways to improve and helping them to evaluate the program's effectiveness.

(6) Lesson Learned Program. Host Nation field offices or anyone in the design agency can prepare an "apparent" lessons learned in a prescribed format, by cc: Mail to Quality Assurance Section. Customers can submit "apparent" lessons learned through their respective field offices. The "apparent" lessons learned are immediately disseminated by cc: Mail to all personnel on a distribution list for "information" since evaluation of an "apparent" lesson learned usually takes a long time. In this way field offices can get the immediate benefit of knowing other office's experiences.

(a) Normally three types of "apparent" lessons learned are involved: design, construction, and project management.

(b) The evaluation is done by appropriate personnel. At the conclusion of the evaluation, if the lesson learned is adopted, the design agency's design, construction and/or project management processes may be changed to reflect the lesson learned. It is then disseminated by cc: Mail to all personnel on the distribution list, and a copy is stored in the design agency NT server. This allows all personnel to access and search via a PC.

(c) If the lesson learned is not adopted it will also be disseminated in the same way, and the rationale for disapproval is explained in the cc: Mail. The non-lesson learned will be placed in a separate directory under the NT server for all personnel to use as reference.

(7) Pocket Guide Checklists. The Construction Quality Section of the design agency has developed a Pocket Guide of Checklists for use by its representatives overseeing both US and Host Nation funded construction. The booklet can fit into the representative's pocket and the checklists, which are in dual languages, are the fold out type. The eleven checklists have been developed covering asphalt pavement, two for concrete construction, and two for electrical construction. By providing a foreign language translation, the design agency has improved the communications between the Quality Assurance Representatives and the Host Nation contractors.

(8) Environmental Testing. Host Nation construction receives considerable attention relating to environmental compliance. Three years ago, in cooperation with the Host Nation, a program was initiated to test construction materials for environmental compliance. This initiative has been a great success in reducing or eliminating controlled substances, such as asbestos, lead in paint, lead in water, and PCBs.

(9) Improved DLA Funding Process. The design agency took the initiative to propose a new funding arrangement for DLA projects that will solve an Army Audit Agency finding. This proposal will reduce Government costs and inefficiencies, and has been accepted by the customer. The design agency has also worked with the customer to assist them in identifying erroneous charges to the foreign fluctuation account that were made under the old procedure so that reimbursement can be obtained by DLA.

13. OTHER ATTRIBUTES.

a. Communication Through Mini-Partnering Sessions. Mini-partnering sessions were conducted by the design agency in 1994 with field offices and customers. Focusing on points of contact and resolving working level issues and procedures, the mini-partnering sessions have been highly successful and will be conducted periodically whenever new personnel come on board. The design agency has established E-Mail connections with over 40 customers. This convenience has saved considerable time in communications and coordination with all customers.

b. Cost Savings and Avoidance. The design agency accomplished over \$29M in costs savings in FY94, and \$5M in FY95. Some of the significant savings included:

(1) Deletion of Cement Mortar, \$14M. In the past, the Host Nation provided cement mortar finishes on interior walls and floors for all of its projects. The design agency convinced the Host Nation to delete the cement mortar finishes as it often resulted in surface cracking and was a

maintenance problem. By deleting the cement mortar finish on all Host Nation projects, the Host Nation will save approximately \$14M in its construction contracts. The savings can be applied to finance other Host Nation projects and result in earlier project completion for our customers.

(2) Telephone Exchanges, \$9.5M. The design agency negotiated to have the Host Nation provide US-made telephone switches, rather than having the customer provide US Government Furnished Materials (GFM). The Host Nation did not normally provide US products in Host Nation projects.

(3) Pallet Racks in Warehouses, \$0.9M. The design agency negotiated with the Host Nation to provide pallet racks in all future Host Nation funded warehouses.

(4) DoDDS Asbestos Abatement, High School, \$0.5M. The design agency initiated actions to cancel this unnecessary asbestos abatement project at a cost saving. Through the design agency's aggressive and tenacious efforts in determining the criteria limits of asbestos, DoDDS agreed to accept the industrial standard of less than 1 percent (vice 0.1 percent) by weight. Since the tested materials were below the 1 percent limit, the project was subsequently canceled.

(5) Fire Station, \$0.8M. Savings were achieved by having the Host Nation provide a base-wide fire alarm system as part of a new Host Nation funded fire station.

c. Progressive Innovation.

(1) US Funded Programs. The design agency is staying on top of new technology, using scanners, plotters, and photography for O&M projects. Matching this technology with the Simplified Design Method (SDM) approach gives the design agency the ability to effectively and efficiently meet and exceed customer requirements. The design agency has also developed Engineered Requirements Contracts, a unique method of combining JOC type construction with SDM. This type of contract accurately depicts the scope of work such that contractors can make firm economical bids, and gives the Government great flexibility in scheduling work and obligating funds in a timely manner.

(2) Host Nation Funded Program. Innovation, simplification of processes, and standardization are required to efficiently execute the \$1B annual Host Nation program. Innovations include:

(a) Form 22 (similar to DD Form 1391s). The design agency established checklists and guides to simplify the preparation and review process, identify requirements, and to invite early participation of the customers.

(b) Developed and improved bilingual technical guides for:

- Abbreviated Preliminary Criteria Packages (PCP) to streamline and reduce the cost of criteria preparation.
- Details for handicapped, toilets, stairs, architectural hardware, and schools.
- Folio of letter-sized as-built drawings for site adaptation of new facilities to reduce the cost of preparing Form 22s, PCPs, CPs, and construction drawings.
- Developed new standard designs for apartments, UEPH with private rooms for all occupants, BOQs, SOQs, townhouses, etc.
- Completed the 117th meeting of the Tri-Service Technical Working Group (TWG). This unique committee establishes criteria and guidance for the tri-services in the Host Nation.
- Established an innovative medical equipment matrices for medical facilities. These matrices consist of CADD developed unit plans, equipment nomenclature, and utility requirements. The equipment folio was used successfully for a complex hospital. For a Medical/Dental Clinic, with 50 dental chairs, the design agency and the Air Force developed a 1,500-page folio consisting of 15,000 equipment components.

(3) Customer Care Initiative and Quality Design Assurance (QDA). The design agency has developed 110 QDAs to date. This initiative was coordinated with the Quality Assurance Branch lessons learned program to identify repetitive design deficiencies and to provide guidance to A-E contractors and in-house designers.

d. Total Quality Management (TQM). Through various in-house Process Action Teams (PAT) and training, the design agency augmented many processes which greatly reduced its time and cost of doing business.

(1) The A-E Contracting PAT developed many process improvements in the A-E contracting system, which dramatically reduced the time to award contracts. Through a series of surveys, interviews and group evaluation and studies, the PAT recommended improvements such as standardizing formats for Prenegotiation Objectives; Price Negotiation Memorandum and final cost and price analysis; developing standard checklists; and expediting the selection process.

(2) The Quality Surveillance (QS) PAT recommendations included:

(a) Establishing a quality working group to share quality control problems. This will be a valuable tool because Host Nation projects are frequently based on standard designs that are replicated at many installations and bases throughout the Host Nation, and one field office may have developed a unique solution for dealing with a problem that other field offices may benefit from.

(b) Another recommendation was to translate the Corps' Safety Manual, EM 385-1-1, into the Host Nation language. This has been done and copies were recently sent to the field offices. At least one Host Nation field office has requested copies for review and possible incorporation into its own safety program.

e. Design Agency Sponsored Technical Training.

(1) The Corps' PROSPECT Electrical and Mechanical Quality Verification (QV) and Construction Quality Management training courses have been very useful to the design agency in providing construction field representatives with the kind of skills needed to oversee US funded construction. However, there are many differences in specifications and construction practices between US and Host Nation projects.

(a) In FY94, the design agency developed and presented Electrical QV training which paralleled the PROSPECT Electrical QV course, but the content was based on Host Nation electrical codes, standards, and specifications. The training material was combined with Huntsville's Electrical QV course material into a single 40-hour course. The combined course has been taught twice to date, to a total of 54 students from the design agency and various DEHs, BCEs and PWCs. The students gained an increased understanding of the differences of electrical standards of both countries. This has resulted in a decrease in the number of repetitive electrical deficiencies.

(b) A similar course is under development to address the specifics of Mechanical QV in the Host Nation environment. This training is scheduled for initial presentation in FY96.

(c) Construction Quality Management (CQM). To improve Host Nation employees' understanding and awareness of the Corps' Construction Management philosophy and improve construction quality, the design agency has translated the Corps' CQM Exportable Training Course into the local foreign language. The translation was completed last year and training was conducted throughout the Host Nation at Resident and Area Offices. This initiative has been effective in conveying the Corps' Three Phase Control concept to Host Nation employees in the design agency and in improving construction quality.

(2) HVAC Training. In 1994, the Marine Corps requested that the design agency sponsor an HVAC training for its in-house personnel, to cover the hands-on operations and maintenance aspects of HVAC systems. The MSC provided two professional mechanical engineers to conduct

the on-site training, while the design agency provided a translator. Training was successfully conducted at two Marine Corps Air Bases.

(3) Environmental Training. The design agency has provided environmental training support for Army, Navy, Air Force, and Marine Corps installations. For FY94, training was provided to 611 US civilian and military personnel. For FY95, 633 personnel from all four of the military services attended training classes such as HAZWOPER, Emergency Response to HAZMAT and AHERA. An ID type contract will be used to meet the FY96 training requirements for US Forces in the Host Nation. Scheduled classes for FY96 include such training as Lead Based Paint Abatement, PCB Awareness, and Radon Testing and Sampling.

f. Design Agency Senior Engineers' Conference. The design agency conducted an annual Senior Engineers' Conference on the 12th and 13th of October. The primary focus of the conference was to improve design agency support to its customers with an emphasis on the execution of the Host Nation Program. The conference was attended by senior level engineers from all of the four services. The agenda provided a forum for the military services to expand on the USACE customer survey; identification of initiatives for improving the design agency support on reimbursable work; and to reemphasize the importance of complete and early project definition in the Form 22 stage. The success of the conference and the positive responses from the customers were due to the thorough preparation and flawless execution of a customer focused agenda by a dedicated design agency team.

Essayons POD, POH and POJ!!

**ARCHITECTURAL AND ENGINEERING INSTRUCTIONS
FOR
INSTALLATION SUPPORT

"GOOD NEWS STORIES
AND
THOUGHTS ON SDM & SAP"**

1. During the past year at JED we've had further hands-on experience in design of repair and renovation projects using SDM, ERC and recently SAP, a series of partnering sessions with our internal and external customers to discuss and address re-engineering. This paper evaluates our experience, in simplification of design and the acquisition processes.

2. As a prototype and to portray the fact that SDM is capable of being employed for complex projects, the following narrative discusses our experience with SDM for design of the Renovation of the New Sanno Hotel. Sanno is a "three star" hotel located in the exclusive embassy/consulate district of Tokyo.

a. Our Design Branch staff developed 143 contract drawings and QA, Construction Branch, developed the specifications for renovation of the director's and the assistant director's quarters, new chef's office, storage buildings, and a walk-in freezer. The process was a great team effort including PPM, Design, QA, safety, contracting and our field office.

b. Good News:

(1) JED received a grade "five" from the Sanno director for "engineering" under the JED customer survey program. This is the highest grade attainable.

(2) The Sanno director is most happy with SDM. The drawing size is perfect for conferences and to check as built problems. He was complimentary of the digitized photographic drafting. Copying machine size drawings saved the customer substantial reproduction costs. Specs were based on the OCE abridged specs. We developed a dedicated and comprehensive design analysis and a folio for GFM/GFE.

(3) On 21 Aug. 96, the PM announced that the lowest bidder, Asahi Construction Co. was 29% below the GE, whereas, Shimizu, a big five contractor was more than double the GE. Six contractors submitted bids.

(4) The success of this project is attributed to sound master planning, effective management

and design charettes, cost control and excellent partnering and communication with the customer.

(5) This SDM project improved function, livability and the quality of life.

c. Application of the SDM process (This follows the proposed SOP in message dated 8/19/96)

(1) Overall direction: Mr. Andrew Constantaras, Dep Dist Engr for PPM, met periodically with Mr. D. Mollendor, the director. Mr. Kisuk Cheung CEMP-E was briefed as a VIP during early development of the design.

(2) PPM: The project manager met frequently with the director and managed the project in a professional and business like manner. He managed this project together with other host nation projects.

(3) Design to Cost/Project Cost Control:

(a) Weekly analysis was made of high cost items and design charges.

(b) Messrs. Henry Miyamoto, Chief, Cost Engineering and Kanno, cost engineer, worked closely with design to control costs.

(c) We analyzed and assured that dollar investments resulted in improvement of "back of the house"(service) and "front of the house"(patrons), functional elements typified by:

* Create valuable space by converting existing interior storage to usable critical functional space.

I.E. The ballroom storage will be converted to a pre-function area for the ballroom. A new storage building will provide valuable storage space for beverage, bulk supplies, food etc.

* Expand substandard director and assistant director's quarters to comply with DoD space criteria. Assure that the investment for the quarters will result in rapid amortization. Rentals in the neighborhood of the New Sanno Hotel exceed \$10K per month per family.

* Identify materials equipment and furnishings to be purchased in the U.S. by Sanno to satisfy IBOP (International Balance of Payments) requirements and to reduce costs. Certain items such as bath tubs cost three times as much in Tokyo compared to the U.S.

* We established accurate design requirements by analysis of the master plan done by others and developed a new master plan.

d. Design Charettes: A series of mini-design charettes was conducted which resulted in:

(1) Mr. Allen Taira, Structural Engineer, was concerned with the future master plan proposal for remove the second story floor slab to create a new stair open to the lobby. This concept was deemed structurally not desirable. Deletion of this stair and opening and master planning a future dedicated fire rated corridor will improve fire safety and structural integrity.

(2) Mr. Alberto Domingo, Architect, developed a new master plan showing a new fire rated corridor exiting directly outside.

(3) As result of his analysis, Dr. J. Lee, Sanitary/Environmental Engineer, resolved the odor issue at the basement entrance and informed Sanno management that the odor was caused by lack of removal of the effluent from the kitchen and not a deficiency of the existing sewage system. This saved Sanno substantial funds which they believed must be programmed for repair work.

(4) The original master plan required the electrical substation capacity to be doubled. Analysis by Mr. Don Kaneshige, Chief Elect/Mech Section, revealed that the substation had substantial surplus capacity. Sanno Management was very pleased with Don's expertise.

e. Design requirements:

(1) Fire protection:

(a) Install new automatic sprinkler and fire alarm systems in the new construction. Contract documents require extension of design for shop drawing submittals by a licensed fire protection engineer.

(b) Master plan for a new stair exiting directly outside.

(c) Persuaded Sanno management not to expand construction over the rear road which is a public area for egress of patrons.

(2) Anti-Terrorism: Original design consists of an enclave where access would be difficult for terrorists to enter. This security level was maintained.

(3) Energy Conservation: Unique plan for assistant director's quarters provided natural light and ventilation by an interior open court.

(4) Environmental:

(a) Resolved odor issue discussed in para 3d(1)(c) (3) above.

(b) The interior of the guest elevator was hot. Mr. Hiratsuka, Chief Mechanical Engineer, correctly analyzed this problem by requiring an AE to insulate the elevator shaft for reduction of heat transfer from the adjacent boiler stack. This improvement resulted in the elevators being comfortable for the first time in ten years! Mr. Owen Lau, project manager, Yokosuka Resident Office, pleased Sanno management by requiring the contractor to install the correct insulation.

f. QA/QC:

(1) We "killed two birds with one stone". Mr. Vidya Lal, QA architect, Construction Branch, developed an excellent set of specifications based on the OCE abridged specifications. He also covered BCOE review at the same time. With his institutional knowledge he will be able to provide QA direction during construction.

(2) Safety: The contract documents require traditional safety requirements.

g. Contracting:

(1) Copying machine size drawings saved substantial reproduction cost (90 cents for large size drawings vs 8 cents for copying machine size drawings).

(2) This is a large project, so traditional contract clauses are included in the solicitation documents.

h. Costs:

(1) As stated above substantial savings was realized by having Sanno management to procure materials and equipment such as bathroom fixtures and kitchen cabinets from the U.S.

(2) The SOW was established by analysis of the original master plan and development of a new master plan with cost analysis. The reason that the Sanno project was a success is because the SOW was accurate and controlled throughout development of design.

i. Design Documents:

(1) Drawing size: Copying machine size drawings saved funds during the design and during solicitation processes.

(2) Drafting: Drafting included CADD, digital photography and free hand drawings. The copying machine size drawings allowed two architects or engineers to work on details whereas the large drawings can only be developed by a single designer.

(3) Photographic Drafting: Sanno was very pleased with the digitized photographs. Not only does this process reduce design costs but the photographs are very useful during conferences, facilitates reviews and photographically portrays existing conditions.

(4) Materials and Systems: We used innovative construction systems such as a steel frame structure for the chef's office and storage buildings with light weight pre-cast concrete exterior panels with thermal properties and textured exterior finish.

(5) Design Analysis:

(a) A comprehensive design analysis was prepared for all disciplines.

(b) A folio of procurement data and catalogs was developed by Mr. Alberto Domingo.

(6) Civil/Structural: Messrs. Jay Tanaka, Chief Civ/Structural Section, and Allen Taira, structural engineer, developed civil and structural requirements as described above. Mr. Tanaka also performed a professional job as the overall manager of the design.

(7) Architectural: Mr. Brian Ryu, Chief Architectural Section, worked adroitly with Sanno management. He and Mr. Alberto Domingo architect developed outstanding architectural plans, elevations, sections, and details.

(8) Electrical: Mr. Don Kaneshige, and Electrical Engineers, Mr. Henry Wong, and Ms. Masami Shinozaki, developed exceptional documents. Mr. Wayne Marshall, former QA electrical engineer, stated that "this is the best electrical design I've ever seen".

(9) Mechanical: Messrs. Ken Hiratsuka, Chief Mechanical Engineer, and Reid Oshiro, mechanical engineer, also developed excellent HVAC, plumbing, sprinkler system design, drawings, design analysis and specifications.

(10) To this point, SDM has been a success. As far as construction surveillance and the SAM process is concerned, we have a strong resident office (Yokosuka) headed by Mr. Dave Watanabe and Capt Mike Wehr and assisted by Mr. Owen Lau, Project Manager, who will manage the construction process in an equally successful manner.

(11) Lessons learned from the Sanno Projects:

- (a) Sanno management favors SDM.
- (b) The director was impressed with digitized photography.
- (c) Copying machine size drawings can be placed in an attaché case and proven to be very handy at conferences as opposed to large size cumbersome drawings.
- (d) Copying machine size drawings are easily filed for reference by the customer.
- (e) Copy machine size drawings resulted in savings for reproduction during design development, and contracting.
- (f) CADD was very effective in making changes.
- (g) The customer obtained accurate as built drawings that were scanned and reproduced to copying machine size drawings and made part of the solicitation documents as ready reference for the bidders.
- (h) The renovation project is unique and larger than traditional SDM projects. Accordingly, the project solicitation was accomplished using traditional methods.

3. SIMPLIFIED ACQUISITION PROCEDURE (SAP): This relatively new process with a threshold of \$100K is the prime candidate for complete application of the “cradle to grave” simplified acquisition methodology (SAM). Simplification of planning, design, contracting and construction surveillance must be achieved without jeopardizing quality. We have tested the SAP process on several projects.:

a. For the Arnn Elementary School Project, design, contracting and construction of an A/C unit installation for a school room, installation of new architectural hardware and painting of lockers were done in a period of seven weeks and completed prior to the deadline. The process included a mini-design charette by PM Ms. Alina Cayetano, a comprehensive design analysis for A/C by Mr. Reid Oshiro, and architectural plans developed by Mr. Gerald Childers, architect. Mr. Fawzy Makar, Chief, Kanagawa Resident Office, reported that “the project was completed in five days without any field problems”. We have one happy customer!

b. Concrete pads for satellite TV antenna disc at various locations. This design was based on a structural analysis that precluded the need for shop drawings. Comments from the field helped to resolve issues. Most pads are complete to date. We have a happy Far East Network

customer.

c. A SAP project was developed for Installation of Chemical Waste Receiving Tank, Akasaka Press Center. Messrs. Hiratsuka and Oshiro applied the SAP process on letter size drawings, using digitized photography and specifications directly on drawings.

d. SAP is a fast and efficient process and has great potential. It could be used as a contract with several repair projects at a given location with an ECC less than \$100K. Our estimate of savings realized by using SAP compared to traditional contracts is 50%. If done by the on-house "SAP Rapid Deployment Force" (SAPRF), the savings could be more. This is powerful because each SAP project is designed to retain quality.

e. Typical recommended projects for SAP are:

- (1) Renovation of bathrooms and kitchen for a large number of family housing.
- (2) Repair of class rooms, offices, snack bars, kitchen in child development center, etc.
- (3) Installation of HVAC in part of an administration building, guest house, new addition to community facilities, etc.
- (4) Repair of electrical distribution systems at small installations replacement of lighting and outlets in school rooms, quarter, etc.

4. REQUIREMENTS CONTRACTS WITH ENGINEERED TECHNICAL REQUIREMENTS (RC/ETR):

a. Formerly known Engineered Requirements Contract ERC; we've had considerable success with RC/ETR typified by:

(1) Airfield aprons for Misawa: Mr. Allen Taira developed engineered details and specifications for typical conditions of sections through the concrete apron based on a geo-technical analysis.

(2) Carpets for DODDS school: Digitized photograph showing existing conditions, new details and specifications, unit price schedules were developed for installation of carpets in school rooms.

b. We've had other RC/ETR contracts, however, the project that is the basis and the original

prototype of RC/ETR is the painting contract at Camp Fuji. The original estimate was based on the traditional requirements contract with performance type narrative descriptions at \$1.4 million. With 40 CADD drawings added, the RC/ETR was awarded at \$650K.

5. BASED ON THE ABOVE HANDS-ON EXPERIENCE, WE HAVE LEARNED THAT:

a. When the customer is presented with a quality product on schedule, the customer is not critical of design costs. We are making believers of our customer, once they observe the success of SDM, SAP and RC/ETR.

b. The potential for SDM goes beyond small mundane repair work. As the COE gains further experience we are sure that SDM will prove to be a very effective method to develop substantial renovation projects vis-a-vis small repair projects.

c. We agree with the draft second edition of the AEI for IS does not place a \$500K cap for SDM projects. This will permit use of SDM for complex repair and renovation projects.

d. With the \$100K threshold SAP provides a great opportunity for the design agencies to provide instant and cost effective design services for the customer.

e. Recommend design agencies develop a SAPRF for preparation designs by in-house design teams.

f. SAP is the prime process where the simplified acquisition methodology could be applied from the “cradle to grave” process.